

# Technology Transitions

American Innovation and Manufacturing Act Subsection I  
Notice of Proposed Rulemaking  
12866 Meeting for 2060-AV46

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Air-Conditioning, Heating, and Refrigeration Institute (AHRI)

# Air-Conditioning, Heating, and Refrigeration Institute

300 plus cooling & heating equipment manufacturers for residential, commercial, & industrial applications:

central AC & heating equipment

components for heating, AC & refrigeration systems

hydronic heating equipment

water heating equipment

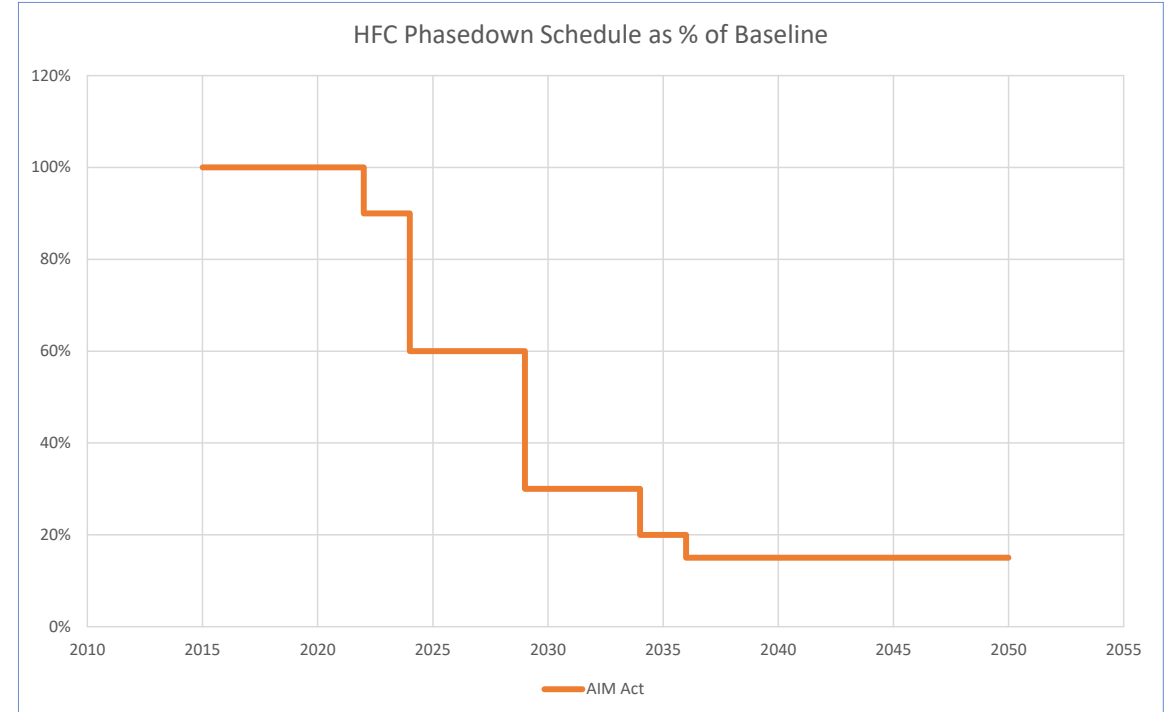
commercial & industrial AC, heating & ventilation equipment

commercial & industrial refrigeration equipment



# The AIM Act & The Kigali Amendment

- Phase down consumption and production of hydrofluorocarbons (HFCs) based on global warming potential (GWP) and climate impact.
- 2011-2013 baseline:
  - 2022: 10% reduction
  - 2024: 40% reduction
  - 2029: 70% reduction
  - 2034: 80% reduction
  - 2036: 85% reduction



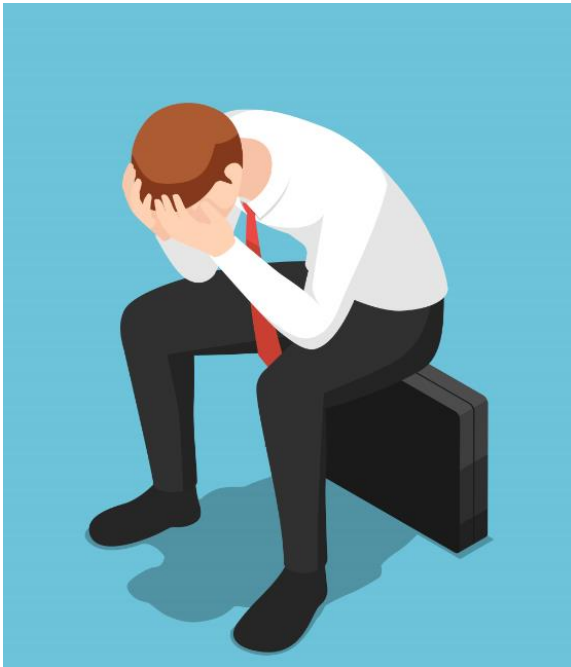


The HFC phasedown is designed to create an economic supply imbalance

Reduced supply economics results in:

- Scarcity
- Increased Prices

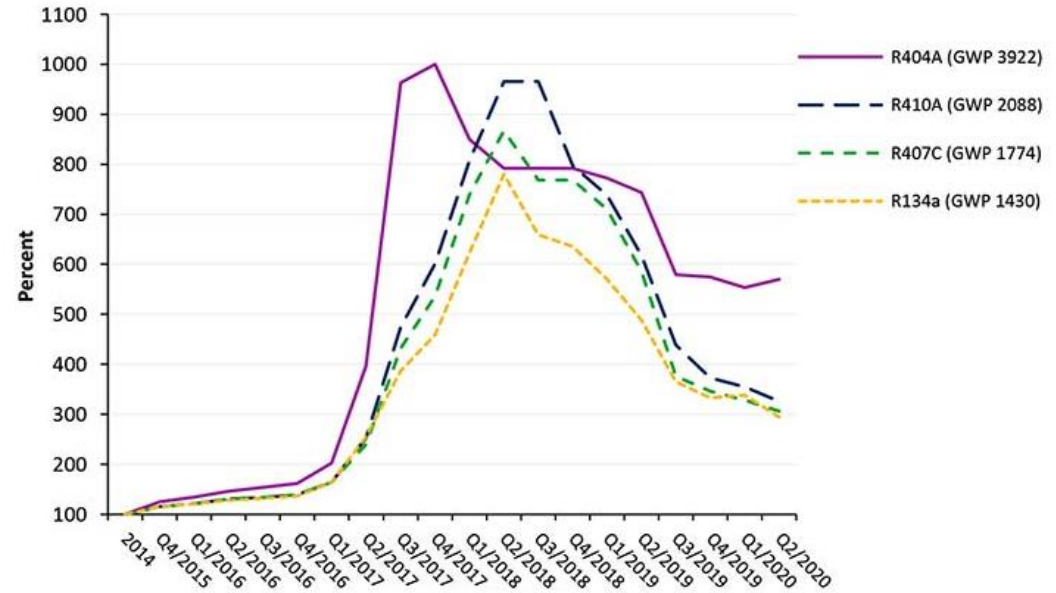
# European price increases as reported by The Cooling Post



- The Cooling Post 2020

## Refrigerant demand and prices

29 SEP 2020



Average purchase prices reported by three large refrigerant distributors. Prices are indexed to the baseline year 2014

EUROPE: The effects of Covid-19 are held at least partly responsible for a fall in refrigerant demand and prices in the quarter to September.

The refrigerant price trends are recorded in the latest report from German consultancy Öko-Recherche.

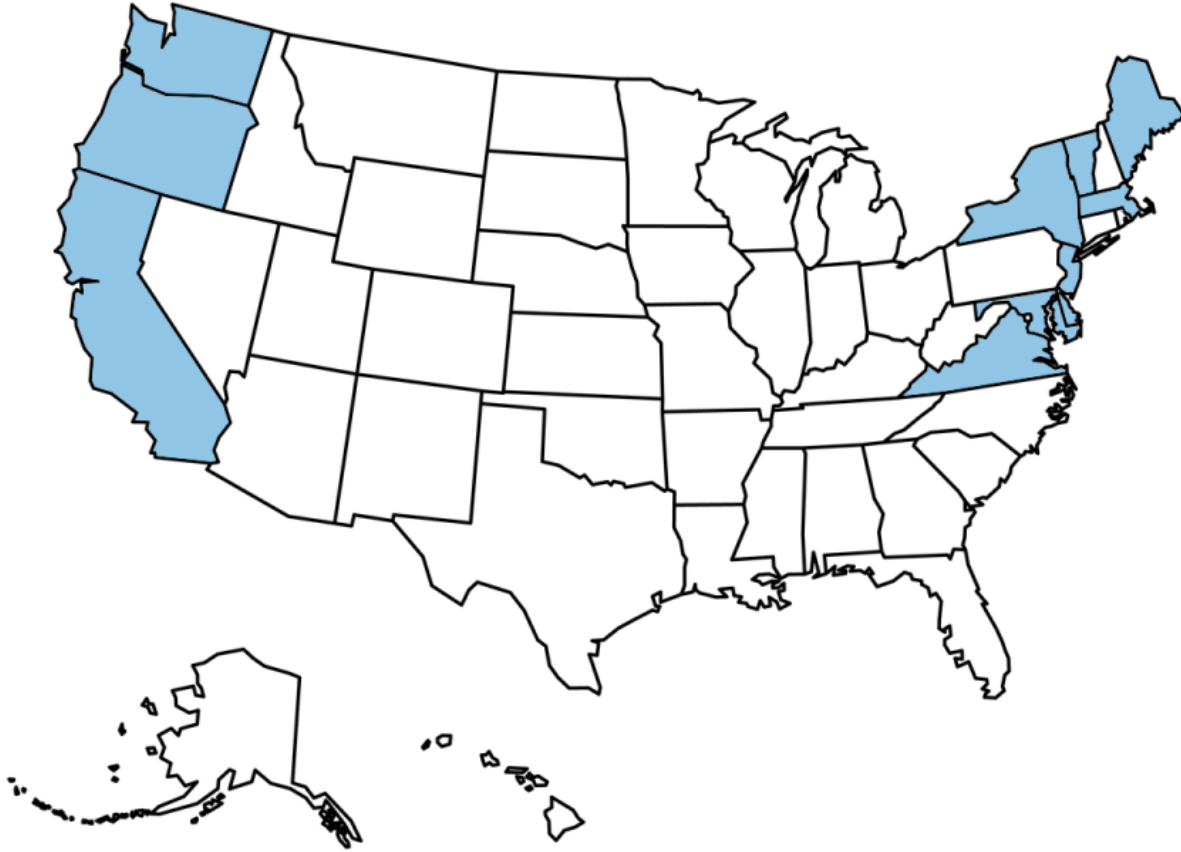
# Reducing Demand to Balance Supply

- OEM/End-user Toolbox
  - Use low-GWP refrigerants in new equipment
  - Consider smaller charge sizes
  - Retrofit existing equipment, A1 -> lower GWP A1
  - Reduce leaks
  - Use recovered/reclaimed refrigerant



**Bottom Line: Future compliance depends on starting now!**

# Climate Alliance States



Some states have transition mandates which has created a need for two supply chains.

The Climate Alliance - Bipartisan Coalition of 25 Governors

- 62% of the U.S. economy
- 56% of the U.S. population
- 43% of U.S. GHG emissions

# Sector Transition Petitions Rulemaking Starts

NRDC/IGSD – [Reinstate SNAP Rules 20 & 21 under AIM](#)

AHRI – [Air Conditioning 750 GWP 2025](#); [Refrigeration Step 1](#), [Refrigeration Step 2](#)

EIA – [All California requirements](#)

AHAM – [AC, dehumidifiers 750 GWP](#)

IGSD – [Auto DIY](#)

DuPont – [XPS 134a transition](#)

CPI – [PU Foam SNAP Rules](#)

IIAR – [Commercial Refrigeration](#)

HCPA – [Aerosol SNAP Rules](#)

Climate Alliance States – [SNAP Rules and](#) California requirements



# Safe Refrigerant Transition Task Force

- Engages with more than 200 stakeholders from more than 75 organizations preparing for the transition.
- Outreach to more than 80,000 contractors and technicians.
- Coordination on enabling activities that have addressed safety standards, building codes, and harmonization for the transition.

# >\$ 7 Million in Research on Refrigerants

## • Testing

- AHRTI-9007: Benchmarking Risk by Whole Room Scale Leaks and Ignitions Testing
- AHRTI-9013: A2L Consequence Study
- AHRTI-9012/Oak Ridge National Laboratory (ORNL): Real-world Leak Assessments of Alternative Flammable Refrigerants
- AHRTI-9008: Investigation of Hot surface Ignition Temperature (HSIT) for A2L Refrigerants
- AHRI-8017: Investigation of Energy Produced by Potential Ignition Sources in Residential Application

## • Modeling

- ASHRAE-1806: Flammable Refrigerants Post-Ignition Simulation and Risk Assessment Update
- ORNL: Investigate the Proper Basis for Setting Charge Limits of A2L, A2, and A3 for Various Types of Products
- NIST: Modeling tools for low-GWP Refrigerant Blends Flammability

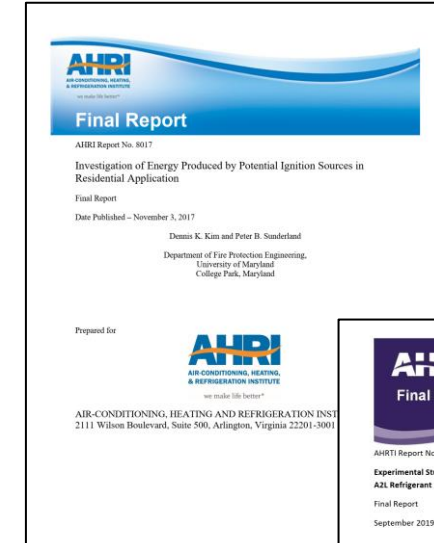
## • Servicing

- ASHRAE-1807: Guidelines for Flammable Refrigerant Handling, Transporting, Storing and Equipment Servicing, Installation and Dismantling
- ASHRAE-1808: Servicing and Installing Equipment using Flammable Refrigerants: Assessment of Field-made Mechanical Joints

## • Detection

- AHRTI-9009: Leak Detection of A2L Refrigerants in HVACR Equipment

\*This is not a comprehensive list (excludes NFPA, Japan, Europe, Manufacturers, etc.)





- [AHRI Safe Refrigerant Transition Task Force webinar series](#)
- HVACR technician training: [ACCA](#), [ESCO](#), and North American Technician Excellence ([NATE](#)).
- [Safe Refrigerant Transition Task Force Newsletter](#)

- Webinar 1: Air Conditioning Applications
- Webinar 2: Commercial Refrigeration Applications
- Webinar 3: Understanding Refrigerant Sensors
- Webinar 4: Predictive Tools for Refrigerant Behaviors
- Webinar 5: Refrigerant Ignition in Open Flame/Hot Surfaces: Has Anything Fundamentally Changed?
- Webinar 6: A2L Refrigerant Behavior in a Structure Fire
- Webinar 7: Refrigerant Detection Systems 101
- Webinar 8: Servicing A2L Refrigerant Systems
- Webinar 9: A2L Refrigerants and Tactical Considerations for Firefighters
- Webinar 10: Codes and Standards "Unlocked"
- Webinar 11: Joint Types and A2L Refrigerants
- Webinar 12: HVACR Equipment Needed for the Safe Refrigerant Transition



Please  
contact me  
with any  
questions!

**Helen Walter-Terrinoni**

302-598-4608

Let's connect on LinkedIn!

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